

LECTURERS' ATTITUDES TOWARDS THE USE OF TECHNOLOGY: ALTERNATIVE STRATEGIES FOR FACULTY ADMINISTRATORS

Ozge Hacifazlioglu, Omer Asım Sacli, Ilker Yengin

Bahcesehir University, Istanbul / TURKEY

ohacifazlioglu@bahcesehir.edu.tr, saclio@bahcesehir.edu.tr, ilker.yengin@bahcesehir.edu.tr

ABSTRACT

For the last two decades of this age of globalization we are living, technological advancement remarked every aspect of our lives significantly and especially the developments in the information technologies has revolutionized the teaching and learning centered activities as well as the research related activities in higher education. Apart from providing quality teaching to a larger number of adult students via remarkable technologies, higher education institutions are required to improve their administrative activity, efficiency and accountability in response to the new demands. The study aims to determine lecturers' attitudes towards the acceptance and use of new technologies in their lectures within the context of higher education and provide alternative strategies for the faculty administrators in terms of increasing technology adaptation responding to the demands of both faculty and students. A series of works have been undertaken to collect data for the research. Related literature was reviewed and a questionnaire was developed by the researchers. The study was also followed by semi-structured interviews conducted with the university lecturers and administrators. The questionnaire was applied to 106 lecturers and 44 responses were received, which is equal to a response rate 41 per cent in the quantitative analysis. Data regarding the qualitative side was collected from 7 senior students.

Keywords: Technology Adaptation, Higher Education Administration, Educational Technology

INTRODUCTION

For the last two decades of this age of globalization we are living, technological advancement remarked every aspect of our lives significantly and especially the developments in the information technologies has revolutionized the teaching and learning centered activities as well as the research related activities in higher education. Apart from providing quality teaching to a larger number of adult students via remarkable technologies, higher education institutions are required to improve their administrative activity, efficiency and accountability in response to the new demands.

Educational Technology is a systematic, iterative process for designing instruction or training used to improve performance (Bayram, 2006). Most researchers believe that technology can be used effectively to improve students' learning processes. The use of technology in education varies within a wide spectrum ranging from students' learning levels and ages, teachers and their teaching styles, inner structure of content, environmental factors, organizational vision to availability of materials. This list could also be extended. Constraints indicated by Parker (1997) are lack of time, software, hardware, keyboarding skills, knowledge of available information technology resources, and unavailability of computer labs and computer lab technicians. He also insists that technology could cause a sense of frustration as a result of the constant change and innovation in the field of information technology. (Dusick, 1998) indicated that the use of instructional technology must be easy to use for lecturers and there must be a benefit for its usage. This also highlights the issue on whether the use of technology in lectures guarantee high quality teaching.

Technology has been associated with the term organizational effectiveness yet in the last decade it has also been encompassed with certain criticisms as to whether it could be an obstacle for teaching quality. Such anxieties have been felt by many educational authorities in different parts of the world. The International Society for Technology (ISTE) initiated National Educational Standards (NETS), in which the following mentioned areas under the frame of "performance indicators" were put forward for all teachers: These are: "Technology operations and concepts; Planning and designing learning environments and experiences; Teaching, learning and the curriculum; Assessment and evaluation; Social, ethical, legal and human issues" (ISTE, 2007).

Age of globalization in a way forces administrators willingly or not to adopt new technologies in their faculties. This has been indirectly initiated by students, lecturers and administrators. In this context, the administrator needs to create a road map for the use of information and educational technology in his or her organization. Therefore technology management strategies need to be implemented with the other strategic planning and management activities maintaining high teaching quality in high education. In other words, strategic management objectives seem to overlap with the technology management objectives since they cover all the dimensions of teaching, learning, integration, management and evaluation. Isman et al. (2004) emphasized the examination attitudes of students towards the use of computers for creating "reflective" settings in education. This idea was supported by Slowinski (2000), who emphasized the following items that foster organizational harmony: "Vision and objectives; Assessment of current school environment; Gap analysis and Evaluation and Strategy" To understand the nature and affects of information system as a means of technology on people, "Technology Acceptance Model" (TAM) was suggested by Davis (1989), who categorized perceived usefulness and perceived ease of use as the most

dominant attributes that affect the acceptance of technology. This model was also used by Adams, Nelson & Todd 1992; Taylor & Todd, 1995; Szajna, 1996; Morris & Dillon, 1997; Hu et al. 1999, Koufaris, 2002) in the previous studies.

Interactive white boards (Smart Boards) are used in a few institutions in Istanbul as a means for teaching applications. Although there is scarcity of data on the usability of interactive smart boards, results of a few studies showed that interactive whiteboards benefit student engagement, learner motivation and knowledge retention. The use of this technology has been successful in reaching students with a variety of learning styles, including those with special needs. Also teachers reported better student involvement, streamlined lesson preparation and enhanced lesson materials (Smart Tech, 2004). In the academic year 2006–2007 a kind of interactive white board has been implemented to use in classrooms at University of Bahcesehir. In practical, the interactive white board can be used as a replacement for traditional whiteboards. It provides lecturers with the opportunity to interact with students via the materials presented on the computer including educational software, web sites, and other media. Projectors, which are used on interactive whiteboards, can also be connected to a video recorder or DVD player thus eliminating the need for a television in the classroom (Bayram, 2006).

METHOD, PURPOSE, RESEARCH GROUP AND LIMITATIONS

The study aims to determine lecturers' attitudes towards the acceptance and use of new technologies in their lectures within the context of higher education and provide alternative strategies for the faculty administrators in terms of increasing technology adaptation responding to the demands of both faculty and students. A series of works have been undertaken to collect data for the research. Related literature was reviewed and a questionnaire was developed by the researchers. The study was also followed by semi-structured interviews conducted with the university lecturers and administrators. The questionnaire was applied to 106 lecturers and 44 responses were received, which is equal to a 41 per cent in the quantitative analysis. Data regarding the qualitative side was collected from 7 senior students studying at the department of Computer Education and Instructional Technology Teacher Education Department. In depth interviews and group discussions, which lasted 2-3 hours per meeting and held every Monday for a month, were conducted to examine and develop alternative strategies for the faculties in terms of technology management from students' perspective as well.

The study aimed to investigate the attitudes and prior experiences of the academic staff via a questionnaire and a series of interviews. The study does not aim to provide a general and a clear picture about implementing new technologies at faculties but as a micro study, from the basis of lecturers and students' perspectives, the results of the study is expected to give insights on the effects of implementing new educational technologies in an academic setting and provide alternative research scenarios for future studies.

FINDINGS

Demographic Findings

In terms of demographic variables; 48 percent of the lecturers (n=21) are from Faculty of Engineering whereas 52per cent were (n=23) from Faculty of Arts and Sciences and the 47 per cent of the lecturers were female and 53 per cent were male. As for the age group; 35 per cent of the faculty members were below 25; 34 per cent were within the range of 26–30, 21 per cent were within the range of 31–45; 5 per cent were within the range of 46-50; 2 per cent were within the range of 51–55 and 3 per cent were 56 and above. 68 percent of the lecturers were within the range of 1-5 experience group, 14 per cent were within the range of 6-10; 5 per cent were within the range of 11-15; 5 per cent were within the range of 16-20 and 8 per cent were 21 and above years of experience group. 5 per cent of the research group was professors; 2 per cent were associate professors; 18 assistant professors; 27 per cent were lecturers and 48 per cent were research assistants and only 6 per cent of the lecturers indicated that they have administrative duty.

Finding

Lecturers' technology backgrounds were analyzed through a set of questions. It was found in the frequency and percent values that; 57.14 (n=12) percent of the lecturers at Faculty of Engineering and 30.43 (n=7) percent of lecturers from Faculty of Arts and Sciences stated to have taken information about the technology in their academic life from structured learning sources. On the other hand 42.86 (n=9) percent of the lecturers in Faculty of Engineering and 69.5 (n= 16) percent of lecturers from Faculty of Arts and Sciences indicated to have taken these from un structured learning sources. This is an expected finding that lecturers from Faculty of Engineering get structured learning sources because the "domain of engineering" has a relation between the courses and technology.

Lecturers' proficiency in using new technologies was determined via three interrelated items formulated in the 5 ranking

scale. Lecturers were asked to indicate the extent to which the following items were performed satisfactorily; “Having enough computer skills to follow up the improvements in their professional area”, “having no problems with using educational technology related devices in their academic life and teaching” and “having general knowledge about educational technologies”. No significance was observed between lecturers’ perceived competency levels in relation to having background information either from structured learning sources or from unstructured learning sources. As a whole 77 per cent of the participants (n=34) found themselves as skillful and knowledgeable enough in the use of technology in academic and teaching processes. Considering the group of lecturers that obtained knowledge and skills in the structured learning sources, 75 percent of lecturers (n=9) working at Faculty of Engineering and 86 per cent (n = 6) working at Faculty of Arts and Sciences responded positively respectively (Mean: 4.0; std:1.0 / Mean:4.7; std:0.7). It was determined in the three set of questions that three quarter of the lecturers from Faculty of Engineering and nearly all the lecturers (96 per cent) from Faculty of Arts and Sciences agreed to have acquired sufficient skills and knowledge to use computer and educational technologies in their academic life and teaching. The rest is constituted from the respondents who are unsure. It could be interpreted that none of the respondents perceived themselves as totally incompetent in terms of technology usage. From another perspective with regards to having unstructured learning sources; 75 per cent of the lecturers (n = 6) working at Faculty of Engineering and 81 per cent of the lecturers (n=13) from Faculty of Arts and Sciences presented a positive attitude towards their technology competency levels respectively (Mean: 3.7; std:1.0 / Mean:4.1; std:0.8). Only one academic personnel in the Engineering faculty indicated his/her knowledge and skills as insufficient.

Lecturers were asked to indicate the number of hours spent in using computer to provide a picture of the lecturers’ computer habits. Overall 20.5 per cent (n=9) of participants has daily computer usage ranging from 1 to 5 hours; 40.9 per cent (n=18) 6-10 hours and 29.5 per cent (n =13) 11-15 hours. The daily computer usage hours were fairly high for both faculty members.

With regards to integrating technology in their lectures, participants were asked two questions to find out how they were “implementing newly learnt technologies in lectures immediately” and “running lessons through establishing interactions with students”. These two questions were devised to be used in determining lecturers’ attitudes towards teaching and their enthusiasms in implementing recently learnt technologies into teaching. Nearly half of the research assistants, nearly a quarter of the assistant professors and lecturers revealed positive responses regarding this dimension while none of the professors and associate professors gave positive agreement.

Lecturers’ awareness and use of technology were investigated via two questions, which were “following technological advancements in educational area” and “using a new technology in education area successfully”. Statistical analysis regarding the perceived competency of lecturers revealed significance related to department variable. Nearly all the lecturers (95 per cent) from the department of “Computer Education and Instructional Technologies Teacher Education” stated a high level of competency in keeping up with the changes in the field of educational technology (n=9, Mean:4.3; std: 0.8).

Lecturers were asked to tick the tools they had been using and also mentioned to indicate the areas where they had been using whether be in the field of teaching, research or in both areas. Technological tools were determined to be widely used in teaching, research or in both areas. According to results computer literacy related tools (Pc, office software and e -mail) and software are used widely in both faculties. PC/Notebook (100 per cent); Projection (95 per cent); Internet (93 per cent); Office Productivity Software (90 per cent); e-mail (85 per cent); smart board (77 per cent); educational software (75 per cent). They also presented a satisfied attitude towards the information services and teaching aid (smart boards, over head projections, projections cassette players) provided by the university.

Faculty politics in revealing technology issues revealed that more than half of the respondents (approximately 60 per cent) agreed faculties’ expertise in revealing the mission and vision within technology usage in academic activities. Another finding that supports administrative priority in the technology driven policies were rated through the item the extent to which satisfactory encouragement was given was responded positively. In general lecturers held a positive view point which was also observed in the mean scores (Mean: 4.3, std:0.4). This finding was also supported in another item where lecturers were asked to comment on the support given in terms of technical base and materials. Similarly all the lecturers agreed on the adequate support provided by the institution (Mean:4.4;std:0.5). They also emphasized the availability of such supplementary programs and materials (Mean: 4.5; std: 0.5) .

As for the sub purpose of training courses, 36 per cent expressed their satisfaction from the in service training courses and only 25 per cent revealed an unsatisfactory response. Part time lecturers were determined to be the group who could not benefit from these courses adequately due to time limitations. Another question related to the issue of in house training policy, was to have a positive thought about administrative constant evaluation and planning system regarding lecturers’ technological competency. 23 per cent (n=10) reported positively (Mean:4.2, std:0.4) and 43 per cent (n=19) negatively (Mean:1.5; std:0.5). These results showed that administration appeared to have supplied in service training but did not closely follow the personal knowledge levels or the needs for further training in lecturers’ careers.

Final sub question was used to examine whether lecturers’ awareness on the availability of the resources at their departments. 50 per cent (n=22) of the lecturers gave positive responses while 18 per cent (n=8) responded negatively (Mean: 1.6; std: 0.5). These results show the half of the lecturers are aware of where to find technological resources within university .

Interactive white board was assumed as a new technology in our research and lecturers were asked to indicate the reasons

affecting the quality of the courses. 77 of the participants (n=34) in our study had used interactive white board previously either in teaching or academic life. The following chart displays the five most reasons which make the use of interactive white boards difficult or easy to use:

Table 1: Usefulness of Interactive White Board

A) Findings related to lecturers who used interactive white board

A.1. Positive Contributions to teaching quality within: Having the opportunity to use multi colors (f=8), no need of cleaning the board (f=6), archiving the written materials (f= 6), video, audio and multi media availability (f= 4), having control of personal computer via smart board (f= 4).

A.2. Drawbacks to teaching quality: The amount of time needed to set up the system (f=12), difficulty of setting the projection (f=12), time spent on changing the teaching styles (f=11), Limitation in the use of other materials (f=8), Slower the works (f=7).

B. Findings related to lecturers who have NEVER used interactive white board

B.1. The same results in Positive Contributions to teaching quality: Support learning in a virtual way (f=4), attracting students (f=3), support productive teaching (f=2), archiving the written materials (f=2), taking notes on charts, tables or maps (f=2).

B.2. Drawbacks to teaching quality: Not appropriate for lesson content (f=5), getting errors too frequently (f=5), not having satisfactory knowledge to use (f=3), doesn't meet teaching needs (f=2), slower the works (f=2).

DISCUSSION AND RECOMMENDATIONS

Analysis focused to draw the technology profile of the academic staff showed that they all perceive themselves proficient enough in having knowledge and channeling it to academic and teaching related tasks. Another outstanding finding was determined concerning the amount of time spent in front computers. Lecturers' appeared to be using computer at high boundaries when compared to international standards. According to The National Science Foundation (1999) average computer usage at work was approximately 2.6 hours per day in 1999 in the USA.

Lecturers were asked to indicate the type of source that served as a facilitator to learn and to use technology, whether be structured or unstructured. The source of knowledge with regards to computer literacy were categorized as structured learning source, that indicated the learner got skills and information provided from a definite and highly organized manner within a curriculum; unstructured learning source, on the other hand signified the information provided in a way where the learner was responsible for his or her own learning. University education, graduate education, doctorate education and on job training were categorized in structured learning sources while Internet, try-learn (own effort) and others were categorized as unstructured learning sources. It appeared in the comparisons that lecturers working at the Faculty of Engineering obtained the necessary base and skills in the usage of the technology during their university education. Hence the same interpretation could not be done for the lecturers, who work at the Faculty of Arts and Sciences. This result could be explained with the nature of the two faculties. Formal education and training is formed on areas that most of them are quantitative domains such as computer, electronic, software and such at Faculty of Engineering while both social and fundamental sciences have been provided at the Faculty of Arts and Sciences. However their reaction to implementing the new technology was not very positive at the beginning, which could be revealed in one of the professors words:

We will definitely lose our credit and prestige !

In our study, lecturers' first reaction, especially the group at the age of 50 years and above, to technology was not very positive. Yet in a month time, with the support of the orientation programs and training courses this sense of resistance was overcome. Similarly, Askar and Usuel (2002) revealed same concerns in a study, conducted on primary school teachers. A study devised by Akpınar (2003) showed that teachers studied their higher education at different regions significantly differed in using Internet within and outside classrooms, but did not differ in using technology in classrooms. The same hypotheses could be adapted to higher education in the future studies.

Another sub problem of the study was to determine constraints experienced by the academic staff. With regard to this sub dimension, significance was observed between the lecturers' title and the degree of difficulty felt in the pre-teaching process from the basis of technical equipment. Lecturers reflected higher levels of concern about the pre teaching process while this was not seen as a problem for the research assistants. Lecturers holding PhDs did not mention it either. This could be interpreted as a reflection of the hidden hierarchical system established at faculties. The reason why pre preparation process before the actual lesson was not seen as a concern could be explained with the job descriptions of the research assistants. Perceiving that preparation process as a part of their duty might cause them to be more pleased with the technology related preparation tasks. Although we were unable to use post hoc tests due to the limited number of respondents, cross tab conducted related to title variable gave hints that could appear in large sample groups.

Physical conditions were perceived to be satisfactory at the faculties in our study. This result seems to contradict with a previous study conducted at a public university, where infrastructure of the city was mentioned as one of the most important barriers to internet and technology usage. It was emphasized in the mentioned study that faculty administrators could solve problems inside the buildings but cannot overcome the obstacles related to the infrastructure. According to the research findings, even though lecturers held a positive attitude towards the use of technology in their lectures, they were unable to

realize this most of the time because of the constraints created by either the faculties or the policy makers Bakioglu and Hacıfazlıoğlu (2004). It was highly emphasized by the students in the in depth interviews and group discussions that not every academic performed high levels of competency and expertise in harmonizing the technology with the curriculum and the ideal teaching related activities. This raises the question on whether availability of certain standards and atmosphere guarantee high quality teaching. This idea was phrased by the students with these words:

We do not want to continue a lesson via a power point presentation. What we really look for is to interact with the lecturer, who skillfully manipulates all the dimensions of the learning process via technology (3/7).

I learn better with the sound of the “chalk”, which is dictated into my brain (2/7).

Because interaction is a dynamic and changing sequence of actions between administrative staff, academic staff and the students, constant modification in the teaching methods, administrative policies and actions are required as well. Using technology in teaching as a means of this kind of interaction has further benefits such as getting a new knowledge, structuring the knowledge or feedbacks on a need of additional work by the students.

Kiesler and McGuire (1987) indicated such kind of action in communicating, reconstructing and harmonizing of the information, which lead to internalized long term understanding. However, the transfer of the traditional pedagogy to new and different technology has not been matched by adequate training and professional development. Lecturers in our study indicated higher levels of contentment in relation to the item regarding the in service courses provided by the faculties. Analysis of the student interviews suggested that faculties’ identity as a technology driven institution might have affected lecturers’ confidence, where lecturers sometimes failed to be responsive to students’ expectations. This was confirmed by nearly all the students in the qualitative analysis:

... To actually model a lesson , lecturers get to see the real hands on that happens...it is via the active engagement that lecturers will be able to reflect their commitment (6/7).

...Block information presented via Power Point slides kill curiosity and excitement to learn (3/7).

Bakioglu and Hacıfazlıoğlu (2007) criticized existing resource mechanisms at public universities, which are highly centralized and which imposes controls over professional development practices without proper consideration of long term sustainability. It is at this point that passion for teaching in the lecturer was underlined as a critical predictor of students’ motivation and sense of belonging in the learning process by Day (2004).

Podhorsky and Fisher (2007) noted how critical it was to create an atmosphere where all teachers are empowered to be researchers in their own classroom, finding ways to collaborate to plan for and meet the needs of all students. This is also the case for the academic setting. Faculties’ technology management strategies were examined through two items in the study. As for the item asking the extent to which mission and vision statements cover technology issues, half of the lecturers and more than half of the lecturers and research assistants gave positive responses. Similarly, lecturers gave positive responses for the item asking the extent to which encouragement for the use of technology satisfactory. It might be concluded from the findings that satisfactory support has been given both in terms of infrastructure and the motivational factors. Material Development Center and other teaching oriented support centers could be recommended to cater for the needs of lecturers at different phases of their careers. It should be noted that each of these departments require careful consideration as special educational topics in the future studies.

A faculty administrator should communicate his or her IT decision makers closely and try to understand the possible problems that can occur and take actions towards these problems to make technology much more easy to use and much flawless. Benamati (1997) noted “Training demands, New integration, Resistance to new technology, Acquisition dilemmas and such” as the important categories in technology management. New technologies in a way force faculties to develop alternative strategies and policies to maintain standards in teaching, curriculum design and management practices as well as lecturers’ motivational factors. In this context, in service training courses serve as a vehicle to cater for the needs of all lecturers with diversified age and experience groups. “Technology Mentoring” could be implemented to provide and sustain a chain of collegiality among the academic staff. Fagenson (1989) found as a result of her empirical study that having a mentor gave significantly better opportunities for career mobility, chances and recognition (Roberts, 2000). One of the students indicated a very important issue in technology management strategies with such words.

Administration should not insist on the use of technology. Lecturer should be given the initiative to decide whether to use it or not. Lecturers should also be careful when using technology and allowing themselves a space to maneuver within the class.

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